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EXAMINER

JAMAL, ALEXANDER

ART UNIT PAPER NUMBER

2643

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/741,115

Applicant(s)

CAPON ET AL.

Examiner

Alexander Jamal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 19-26 is/are allowed.
- 6) ☒ Claim(s) 1-15 and 27-31, 33-39 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendments

1. Based upon the submitted amendment, examiner notes that claim 16 has been amended, and claims 17,18 have been cancelled.
2. Examiner withdraws rejections to claims 16-26.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-11,14-15,27-31,33-37,39** rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (4246582), and further in view of Gambuzza (6226331).

As per **claim 1**, Kondo discloses a transceiver system comprising an attenuation device (Pad 17 in abstract) that comprises a resistive circuit (pad 17 in Fig. 1) that may be a resistive H-pad (Col 3 lines 48-57) that is operable to connect to the transceiver line (which may be a twisted wire pair telephone line: Col 1 lines 48-68). However Kondo does not disclose at what frequencies his system transmits and receives data. Kondo also does not disclose a capacitive circuit coupled in series to the resistive circuit that is operable to permit normal operation of telephone services at a subscriber premise.

Kondo discloses that his system will transmit and receive signals at two different frequencies, but he does not limit the system to any specific frequencies. It would have been obvious to one of ordinary skill in the art at the time of this application to design the transceiver system (including hybrid coil 16 and all additional circuitry) to operate at high frequencies (such as ADSL) for the purpose of being comparable with modern day transmission standards and rates.

Gambuzza discloses an isolation interface for a transceiver system (xDSL modem) on a telephone line (ABSTRACT). He teaches an inexpensive isolation system comprising two capacitive circuits (one in series with the tip wire and one in series with the ring wire as per capacitors C7, C8 in Fig. 4, or capacitors C1 and C2 in Fig. 3) for the purpose of providing an isolating termination for a transceiver system (an xDSL modem). The isolating capacitive circuits will only couple the appropriate data signals across and as such they will allow normal operation of telephone services in a subscriber premise (Col 3 lines 58-64, Col 7 lines 15-40). It would have been obvious to one of ordinary skill in the art at the time of this application to implement Gambuzza's capacitive circuits in series with the transceiver system (including the resistive pad) for the purpose of providing an isolation termination for the transceiver system disclosed by Kondo.

As per **claim 27**, claim rejected as a method performed by the system described in the rejection of claim 1. Gambuzza's capacitive circuit provides galvanic isolation (Col 3 lines 58-63) (Col 5 lines 21-52) that inherently (by definition) will filter out telephone signals received at the subscriber premise. The isolating capacitive circuits will only

couple the appropriate data signals across and as such they will allow normal operation of telephone services in a subscriber premise (Col 3 lines 58-64, Col 7 lines 15-40). Because Gambuzza's isolation circuitry functions with an xdsl modem to allow the modem to receive signaling on an xdsl telephone line, the isolation circuitry inherently provides a substantially consistent amount of attenuation for data signals in the receive frequency band (Col 4 lines 16-33) for the purpose of allowing substantially consistent detection of the received data signals through the isolation circuitry.

As per **claim 35**, claim rejected for the same reasons as described in the rejections of claims 1, 27.

As per **claim 2**, Gambuzza's capacitive circuit provides galvanic isolation (Col 3 lines 58-63) (Col 5 lines 21-52) that inherently (by definition) will filter out telephone signals received at the subscriber premise.

As per **claim 3**, Gambuzza's capacitive circuit provides galvanic isolation (Col 3 lines 58-63) (Col 5 lines 21-52) that inherently (by definition) will filter out telephone signals received at the subscriber premise. Because the isolation circuits comprises series capacitors, the capacitors inherently possess decreasing amount of attenuation for data signals as the transmit frequency of the data signals increases.

As per **claim 4**, Claim rejected for the same reasons as the rejection of claim 3. Additionally, because Gambuzza's isolation circuitry functions with an xdsl modem to allow the modem to receive signaling on an xdsl telephone line, the isolation circuitry

inherently provides a substantially consistent amount of attenuation for data signals in the receive frequency band (Col 4 lines 16-33) for the purpose of allowing substantially consistent detection of the received data signals through the isolation circuitry.

As per **claims 5,29,36**, Examiner takes official notice that it is notoriously well known in the art that traditional telephone signals have a frequency approximately below 4 KHz. It would have been obvious to one skilled in the art that the telephone signals would have a frequency approximately below 4KHz for the reason that the device may be used on a standard telephone line. Additionally, Gambuzza discloses that an xDSL modem (such as an ADSL modem Col 1 lines 35-55) may have a bandwidth as high as 1.1MHz, and that the modem uses an isolation barrier to filter out the low frequency telephone signals (Col 5 lines 20-52). As such, it would have been obvious to one of ordinary skill in the art at the time of this application that the transmit and receive frequency bands of the ADSL modem could be arbitrarily chosen (up to approximately 1 MHz) for the purpose that they do not interfere with each other, or with the standard low frequency signals on a standard telephone line.

As per **claim 6**, It would have been obvious to one of ordinary skill in the art at the time of this application that the attenuation provided by the attenuation device to the receive frequency band of Gambuzza's modem would be a substantially consistent value (such as 5dB) for the purpose of allowing a substantially consistent detection of the received data signals through the isolation circuitry.

As per **claim 7**, Kondo's transceiver comprises a first (amplifier 22 in Fig. 1) and a second (amplifier 14 in Fig. 1) coupled to the subscriber line (and the capacitive isolation circuitry taught by Gambuzza) through hybrid coil 16 and Pad 17.

As per **claims 8,9,30,37**, Kondo discloses that the resistive attenuation circuit may be a resistive H-Pad (Col 3 lines 48-57). A resistive H-pad comprises the structure claimed in applicant's claim 9.

As per **claim 10**, Gambuzza discloses that the attenuating capacitive circuit comprises a first capacitive filter coupled to the tip wire of a telephone line and a second capacitive filter to couple to the ring wire (capacitors C7,C8 in Fig. 4, or capacitors C1 and C2 in Fig. 3).

As per **claim 11**, Gambuzza discloses that the attenuating capacitive circuit comprises a first capacitive filter coupled to the tip wire of a telephone line and a second capacitive filter to couple to the ring wire (GAMBUZZA: capacitors C7,C8 in Fig. 4, or capacitors C1 and C2 in Fig. 3). Kondo's attenuating circuit (to which Gambuzza's isolating capacitors would couple in series to) comprises a resistive H-Pad configuration (KONDO: Col 3 lines 48-57) that (by definition) comprises the resistive structure as per claim 9, with the first and second resistive elements respectively coupled in series to first and second capacitors.

As per **claims 14,39**, Kondo discloses that the H-Pad may be set to model the optimum impedance for the particular line for which it is being used (Col 2 lines 5-32). The resistive H-Pad configuration (by definition of the configuration) will inherently

model various lengths of twisted pair lines between the remote location (CO) and the subscriber premise (Col2 lines 23-26).

As per **claims 15, 33**, Kondo discloses that the resistive attenuation circuit may be a resistive H-Pad (Col 3 lines 48-57). Kondo discloses that the H-Pad may be set to model the optimum impedance for the particular line for which it is being used (Col 2 lines 5-32). The resistive H-Pad configuration (by definition of the configuration) will inherently model various lengths of twisted pair lines between the remote location (CO) and the subscriber premise (Col 2 lines 23-26). Kondo further discloses that there may be multiple sets of resistors (two or more resistors that may be varied in a ganged manner). This would inherently require a selector (such as a switch) for the purpose of selecting one of the resistive circuits.

As per **claim 28**, Kondo discloses that the H-Pad attenuator (the step of attenuating) may be set to model the optimum impedance for the particular line for which it is being used (Col 2 lines 5-32). The resistive H-Pad configuration (by definition of the configuration) will inherently model various lengths of twisted pair lines between the remote location (CO) and the subscriber premise (Col2 lines 23-26). This will increase the effective distance between the modem and the remote location.

As per **claim 31**, in Kondo's method the processor (inherent to the system as stated above) receives a measured signal strength from the twisted pair line and calculates an appropriate amplification or attenuation for the data signal (based upon signal strength). This information is communicated to a gain control circuit (comprising

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feedback resistors 27,28) that adjusts the gain of the amplifiers 22,14 or sets the appropriate value of the resistance attenuation pad 17 (Col 4 lines 10-34).

As per **claim 34**, Kondo discloses the step of modeling the optimum impedance for the particular line for which it is being used (Col 2 lines 5-32). The resistive H-Pad configuration (by definition of the configuration) will inherently model various lengths of twisted pair lines between the remote location (CO) and the subscriber premise (Col 2 lines 23-26). Kondo further discloses that there may be multiple sets (a plurality) of resistors (two or more resistors that may be varied in a ganged manner). In Kondo's method the processor (inherent to the system as stated above) receives a measured signal strength from the twisted pair line and calculates an appropriate amplification or attenuation for the data signal (based upon signal strength). This information is communicated to a gain control circuit (comprising feedback resistors 27,28) that adjusts the gain of the amplifiers 22,14 or sets the appropriate value of the resistance attenuation pad 17 (Col 4 lines 10-34).

5. Claims 12-13,38, rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (4246582) and Gambuzza (6226331) as applied to claims 1-11,35, and further in view of Lundqvist (4432029).

As per **claims 12,38**, Kondo and Gambuzza disclose applicant's claims 1-11,35, but do not mention the capacitive filters comprising a resistive element in parallel with each capacitor.

Lundqvist discloses that series capacitors used in a high voltage network (such as a telephone line) may use a resistive varistor in parallel with the capacitors in order to provide overvoltage protection to the capacitors (Col 1 lines 15-60). It would have been obvious to one of ordinary skill in the art at the time of this application to utilize resistive elements in parallel with the series capacitive elements on a high voltage network (telephone line) for the purpose of providing the capacitors with overvoltage protection.

As per **claim 13**: Kondo, Gambuzza and Lundqvist disclose applicant's claims 1-12 but they do not specify the exact values used in the resistive and capacitive elements.

It would have been obvious to one skilled in the art at the time of the invention to utilize appropriate component values for the fifth resistive element and the capacitive elements for the purpose of providing the appropriate amount of attenuation (filtering) for the specific application (loop characteristics/transmission standard). It would have also been obvious to one skilled in the art at the time of the invention to utilize appropriate component values for the sixth resistive element for the purpose of providing the appropriate amount of protection for the chosen capacitor values and any overvoltage levels that the capacitors may be exposed to.

Allowable Subject Matter

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6. **Claims 32** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. **Claims 16,19-26** are allowed over the prior art of record.

Response to Arguments

8. Applicant's arguments filed 10-29-2004 have been fully considered but they are not persuasive.

As per applicant's argument (remarks pages 11-12) regarding the capacitors of Gambuzza disclosing the elements of claim 12, the impedance of a capacitor comprises $1/(2\pi fC)$. When implemented with a transceiver interface, the capacitors inherently (via the aforementioned equation that defines capacitor impedance) decrease attenuation of a signal as the frequency of that signal increases because the impedance of the capacitor decreases.

As per applicant's argument (remarks pages 12-13) that modifying the Kondo reference with the capacitors taught by Gambuzza will render the invention of Kondo inoperative, examiner disagrees with the argument. The capacitors taught by Gambuzza are used to isolate the modem from low frequency noise/signals on the loop. The capacitors will present a high impedance to the voice-frequencies (POTS) compared to the low impedance presented to the high frequency signals. Applicant argues that

inserting the capacitors on the loop will decrease the amount of attenuation as frequency increases (remarks page 12, bottom of first paragraph), which is incorrect. The impedance of the capacitors will add in series to the existing impedance of the loop, the capacitors **will not** decrease attenuation of the entire loop, only add minimal attenuation to the high frequency DSL signals and add greater attenuation to the low frequency POTS signals. Again, the function of the capacitors is to isolate the modem from the low frequency signals. The resistive pad disclosed by Kondo is used to compensate for changes in impedance as seen by the hybrid coil. The primary purpose of the pad is to compensate for variations in impedance (Kondo: Col 4 lines 10-20). The motivation to add the capacitors is to allow the modem to function along with other POTS devices on the same loop. The function of the resistive pad is to compensate for impedance changes in the loop (adding the capacitors is an impedance change), and that function will not be destroyed by adding the capacitors (only change the value of the resistive pad). The limitation of claim 27 that recites **decreasing** the amount of attenuation as the frequency of the signal increases is satisfied by the inherent frequency dependant impedance of the capacitors.

As per applicant's argument that the examiner used hindsight to combine the Kondo and Gambuzza references and that the examiner was not 'cast back to the time of invention' when providing an obvious rejection that Kondo would have implemented a modern day standard such as ADSL in the system, the examiner used the phrase 'It would have been obvious to one of ordinary skill in the art **at the time of this application**'. At the time of this application, a person well skilled in the art, with access to the Gambuzza

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and Kondo references would be aware of the xDSL standards and transmission properties (see Gambuzza). Additionally, even the applicant's admitted prior art (background section, specification page 2) discloses that it was known at the time of this application that xDSL was a viable and desired technology due to increased data rates over existing copper infrastructure.

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ
March 30, 2005


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2201